KPI definitions

KPI definitions amend universities' Multidimensional Project's Cube definition (see KPIs tab).

The increase in subjects average grade at level not lower than 0.5% semesterly compared to the previous edition of the subject (previous year of teaching the subject at the same major) until a satisfactory level of average grade is at: 4.25 .

Name:

Grades

Value expression:
```
[Measures].[AverageGrade]
```

Goal expression:
```
( KPIValue ( "Grades" ), PARALLELPERIOD( [Start Date].[Hierarchy].[Year]
, 1 , [Start Date].[Hierarchy].CurrentMember ) )* 1.005
```

Status expression:
```
IIf(KPIVALUE("Grades")>KPIGoal("Grades") OR KPIVALUE("Grades")>=4.25,1,-1)
```

Trend expression:
```
IIf(KPIVALUE("Grades") >( KPIValue ( "Grades" ), PARALLELPERIOD(
[Start Date].[Hierarchy].[Year], 1 ,
[Start Date].[Hierarchy].CurrentMember ) ),1,-1)
```

The decrease in semestral number of students on each major at level not higher than 2% of the starting number of students with the exception of the first year of studies with the maximum decrease at 5% possible.

Name:

Students Number

Value expression:
```
[Measures].[Studying Count]
```

Goal expression:

Status expression:
```
IIf(KPIVALUE("Students Number")>KPIGoal("Students Number"),1,-1)
```

Trend expression:

Analytical problems queries

MDX queries can be executed using Microsoft SQL Server Management Studio tool by connecting to Analytical Server with Universal University data warehouse deployed and creating a new MDX query.

1. Compare the number of students (percentage of the starting number) who have finished their studies with the degree depending on the major.

   ```
   WITH
     MEMBER [Measures].[Starting Students] AS
       [Measures].[Studying Count]
     MEMBER [Measures].[Graduated Students] AS
       [Measures].[Graduations Count]
     MEMBER [Measures].[Graduation Rate] AS
         ROUND(([Measures].[Graduated Students] / [Measures].[Starting Students]) * 100,2)
   SELECT
     [Major].[MajorName].[MajorName] ON ROWS,
     [Measures].[Graduation Rate] ON COLUMNS
   FROM
     [Warehouse]
   ```

2. Compare the semester after which, depending on the major, the most number of students resigned in the last 7 ended semesters?

3. What are the most difficult (hardest to pass) subjects in each major in the last 7 ended semesters?

4. Compare the average and median grade of students depending on the teacher in the last 4 ended semesters.

   ```
   SELECT
   [Measures].[AverageGrade] on columns,
   {nonemptycrossjoin([Start Date].[Hierarchy].[Year].Members,
   [Teacher].[NameAndSurname].[NameAndSurname])} on rows
    from [Warehouse]
   ```

5. Compare the pass rate of students who have had any ECTS missing to those that had not in the last 7 ended semesters.

6. Compare students' grades depending on the academic title of the teacher conducting the subject in the last 7 ended semesters.
   SELECT NON EMPTY { [Measures].[AverageGrade] } ON COLUMNS,
   NON EMPTY { ([Start Date].[Year].[Year].ALLMEMBERS *
   [Teacher].[AcademicTitle].[AcademicTitle].ALLMEMBERS) }
   DIMENSION PROPERTIES MEMBER_CAPTION, MEMBER_UNIQUE_NAME ON
   ROWS FROM [Warehouse]
   CELL PROPERTIES VALUE, BACK_COLOR, FORE_COLOR, FORMATTED_VALUE,
   FORMAT_STRING,
   FONT_NAME, FONT_SIZE, FONT_FLAGS

7. Compare students' average grade depending on how many publications the teacher conducting the subject had during the whole semester in the current and previous semester.

8. For each major, compare overall graduation rate (pass rate) depending if the major was students first or further choice during the recruitment process.

9. Which type of course (online, stationary, mixed, individual) has had the highest average grade in the last 4 ended semesters?

   SELECT NON EMPTY { [Measures].[AverageGrade] } ON COLUMNS, NON EMPTY {
([Start Date].[Year].[Year].ALLMEMBERS *
[Junk].[TeachingType].[TeachingType].ALLMEMBERS) } DIMENSION PROPERTIES
MEMBER_CAPTION, MEMBER_UNIQUE_NAME ON ROWS FROM [Warehouse] CELL
PROPERTIES VALUE, BACK_COLOR, FORE_COLOR, FORMATTED_VALUE,
FORMAT_STRING, FONT_NAME, FONT_SIZE, FONT_FLAGS

10. Which type of course (online, stationary, mixed, individual) has had the lowest completion rate in the last 4 ended semesters?

    WITH

```
  MEMBER [Measures].[Total] AS
    COUNT( [Teaching].[ID_Teaching].MEMBERS )
  MEMBER [Measures].[Completed] AS
    SUM(
      { [Teaching].[ID_Teaching].MEMBERS },
      IIF( [Teaching].CurrentMember.Properties( "Completed" ) = 1, 1, NULL )
    )
  MEMBER [Measures].[CompletionRate] AS
    ROUND( [Measures].[Completed count]  / [Measures].[Teaching Count], 4 )
SELECT
  { [Measures].[Teaching Count], [Measures].[Completed count],
[Measures].[CompletionRate] } ON COLUMNS,
  { [Junk].[TeachingType].MEMBERS } ON ROWS
FROM
  [Warehouse]
```

11. Compare how many subjects were conducted in each form (online,stationery,mixed)
    depending on the major in the last 4 ended semesters.